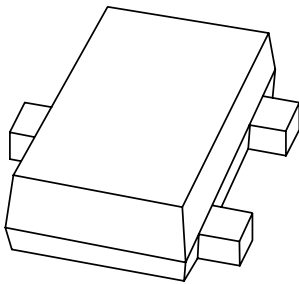


# DATA SHEET



## **BZB984 series** Voltage regulator double diodes

Product specification  
Supersedes data of 2001 Nov 28

2002 Jun 21

Voltage regulator double diodes

BZB984 series

FEATURES

- Total power dissipation: max. 425 mW
- Approx. 5%  $V_Z$  tolerance
- Ultra small flat plastic SMD package
- Working voltage range nom. 2.4 to 15 V (E24 range).

APPLICATIONS

- General regulation functions
- ESD and surge protection.

DESCRIPTION

Low-power voltage regulator diodes in a SOT663 ultra small plastic SMD package.

PINNING

PIN	DESCRIPTION
1	cathode 1
2	cathode 2
3	common anode

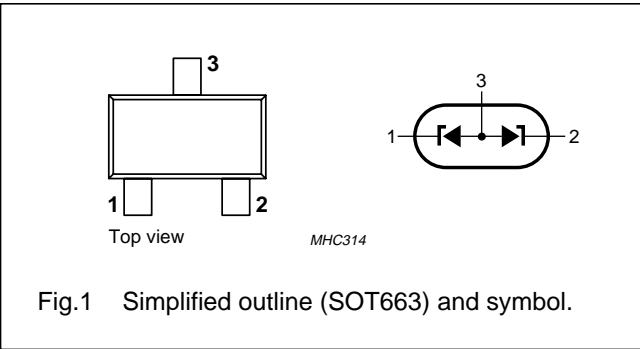


Fig.1 Simplified outline (SOT663) and symbol.

MARKING

TYPE NUMBER	MARKING CODE	TYPE NUMBER	MARKING CODE	TYPE NUMBER	MARKING CODE	TYPE NUMBER	MARKING CODE
BZB984-C2V4	91	BZB984-C3V9	96	BZB984-C6V2	9B	BZB984-C10	9G
BZB984-C2V7	92	BZB984-C4V3	97	BZB984-C6V8	9C	BZB984-C11	9H
BZB984-C3V0	93	BZB984-C4V7	98	BZB984-C7V5	9D	BZB984-C12	9J
BZB984-C3V3	94	BZB984-C5V1	99	BZB984-C8V2	9E	BZB984-C13	9K
BZB984-C3V6	95	BZB984-C5V6	9A	BZB984-C9V1	9F	BZB984-C15	9L

LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 60134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$I_F$	continuous forward current		–	200	mA
$I_{ZSM}$	non-repetitive peak reverse current	$t_p = 100 \mu s$ ; square wave; $T_{amb} = 25 \text{ }^{\circ}C$ ; prior to surge	see Table 1		
$P_{tot}$	total power dissipation	$T_{amb} = 25 \text{ }^{\circ}C$ ; 2 diodes loaded; note 1	–	425	mW
		$T_{amb} = 25 \text{ }^{\circ}C$ ; 1 diode loaded; note 1	–	265	mW
$P_{ZSM}$	non-repetitive peak reverse dissipation	$t_p = 100 \mu s$ ; square wave; $T_{amb} = 25 \text{ }^{\circ}C$ ; prior to surge	–	40	W
$T_{stg}$	storage temperature		–65	+150	$^{\circ}C$
$T_j$	junction temperature		–	150	$^{\circ}C$

Note

1. Device mounted on an FR4 printed-circuit board.

## Voltage regulator double diodes

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**ELECTRICAL CHARACTERISTICS****Total BZB984-C series**

$T_{amb} = 25\text{ }^{\circ}\text{C}$  unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MAX.	UNIT
$V_F$	forward voltage	$I_F = 10\text{ mA}$ ; see Fig.2	0.9	V
$I_R$	reverse current			
	BZB984-C2V4	$V_R = 1\text{ V}$	50	$\mu\text{A}$
	BZB984-C2V7	$V_R = 1\text{ V}$	20	$\mu\text{A}$
	BZB984-C3V0	$V_R = 1\text{ V}$	10	$\mu\text{A}$
	BZB984-C3V3	$V_R = 1\text{ V}$	5	$\mu\text{A}$
	BZB984-C3V6	$V_R = 1\text{ V}$	5	$\mu\text{A}$
	BZB984-C3V9	$V_R = 1\text{ V}$	3	$\mu\text{A}$
	BZB984-C4V3	$V_R = 1\text{ V}$	3	$\mu\text{A}$
	BZB984-C4V7	$V_R = 2\text{ V}$	3	$\mu\text{A}$
	BZB984-C5V1	$V_R = 2\text{ V}$	2	$\mu\text{A}$
	BZB984-C5V6	$V_R = 2\text{ V}$	1	$\mu\text{A}$
	BZB984-C6V2	$V_R = 4\text{ V}$	3	$\mu\text{A}$
	BZB984-C6V8	$V_R = 4\text{ V}$	2	$\mu\text{A}$
	BZB984-C7V5	$V_R = 5\text{ V}$	1	$\mu\text{A}$
	BZB984-C8V2	$V_R = 5\text{ V}$	700	nA
	BZB984-C9V1	$V_R = 6\text{ V}$	500	nA
	BZB984-C10	$V_R = 7\text{ V}$	200	nA
	BZB984-C11	$V_R = 8\text{ V}$	100	nA
	BZB984-C12	$V_R = 8\text{ V}$	100	nA
	BZB984-C13	$V_R = 8\text{ V}$	100	nA
	BZB984-C15	$V_R = 10.5\text{ V}$	50	nA

## Voltage regulator double diodes

## BZB984 series

**Table 1** Per type BZB984-C2V4 to C15  
 $T_j = 25\text{ }^{\circ}\text{C}$  unless otherwise specified.

BZB984- Cxxx	WORKING VOLTAGE V <sub>Z</sub> (V) at I <sub>Z</sub> = 5 mA		DIFFERENTIAL RESISTANCE r <sub>diff</sub> (Ω)				TEMP. COEFF. S <sub>Z</sub> (mV/K) at I <sub>Ztest</sub> = 5 mA (see Figs 3 and 4)	DIODE CAP. C <sub>d</sub> (pF) at f = 1 MHz; V <sub>R</sub> = 0 V	NON-REPETITIVE PEAK REVERSE CURRENT I <sub>ZSM</sub> (A) at t <sub>p</sub> = 100 μs; T <sub>amb</sub> = 25 °C
	Tol. ≈5%		at I <sub>Z</sub> = 1 mA		at I <sub>Z</sub> = 5 mA				
	MIN.	MAX.	TYP.	MAX.	TYP.	MAX.			
2V4	2.2	2.6	275	600	70	100	-1.3	450	6.0
2V7	2.5	2.9	300	600	75	100	-1.4	450	6.0
3V0	2.8	3.2	325	600	80	95	-1.6	450	6.0
3V3	3.1	3.5	350	600	85	95	-1.8	450	6.0
3V6	3.4	3.8	375	600	85	90	-1.9	450	6.0
3V9	3.7	4.1	400	600	85	90	-1.9	450	6.0
4V3	4.0	4.6	410	600	80	90	-1.7	450	6.0
4V7	4.4	5.0	425	500	50	80	-1.2	300	6.0
5V1	4.8	5.4	400	480	40	60	-0.5	300	6.0
5V6	5.2	6.0	80	400	15	40	1.0	300	6.0
6V2	5.8	6.6	40	150	6	10	2.2	200	6.0
6V8	6.4	7.2	30	80	6	15	3.0	200	6.0
7V5	7.0	7.9	30	80	6	15	3.6	150	4.0
8V2	7.7	8.7	40	80	6	15	4.3	150	4.0
9V1	8.5	9.6	40	100	6	15	5.2	150	3.0
10	9.4	10.6	50	150	8	20	6.0	90	3.0
11	10.4	11.6	50	150	10	20	6.9	90	2.5
12	11.4	12.7	50	150	10	25	7.9	85	2.5
13	12.4	14.1	50	170	10	30	8.8	80	2.5
15	13.8	15.6	50	200	10	30	10.7	75	2.0

Voltage regulator double diodes

BZB984 series

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
R <sub>th j-s</sub>	thermal resistance from junction to soldering point	2 diodes loaded; note 1	125	K/W
		1 diode loaded; note 1	230	K/W
R <sub>th j-a</sub>	thermal resistance from junction to ambient	2 diodes loaded; note 2	294	K/W
		1 diode loaded; note 2	472	K/W

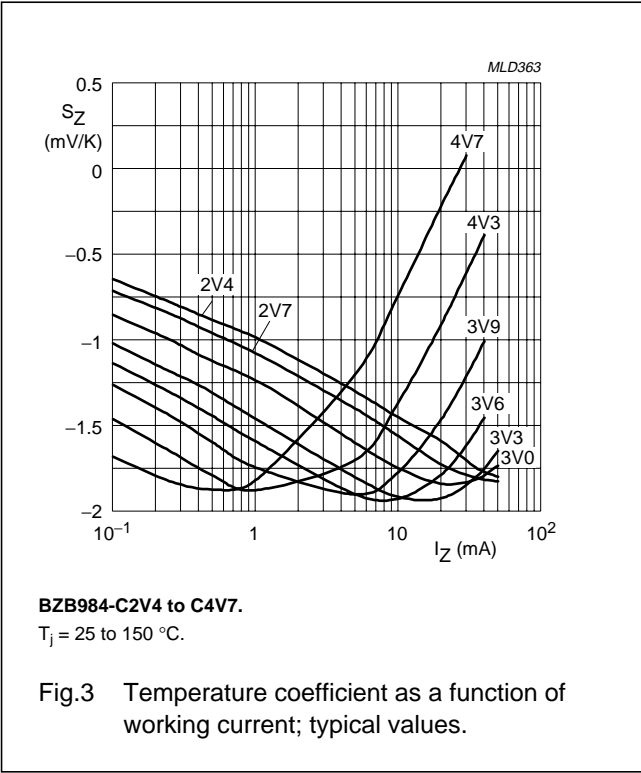
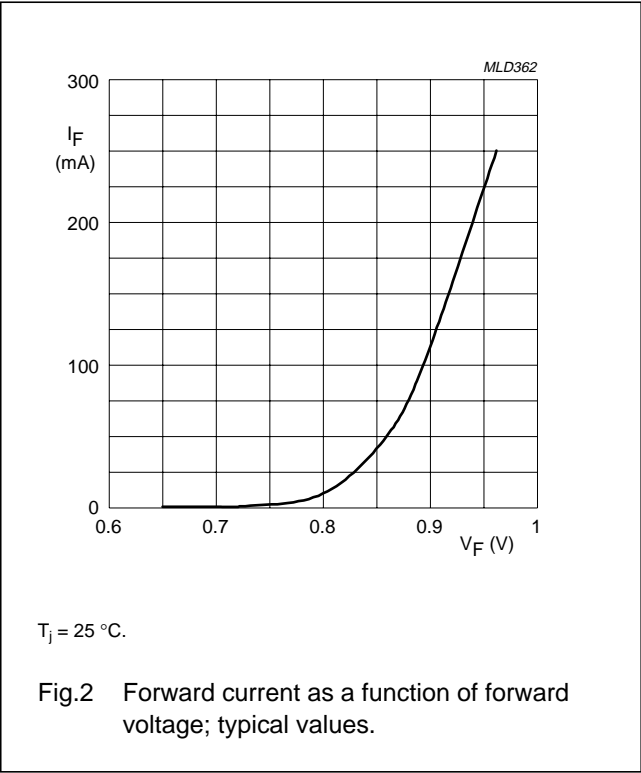
Notes

1. Solder points on cathode tabs.
2. Device mounted on an FR4 printed-circuit board.

Soldering

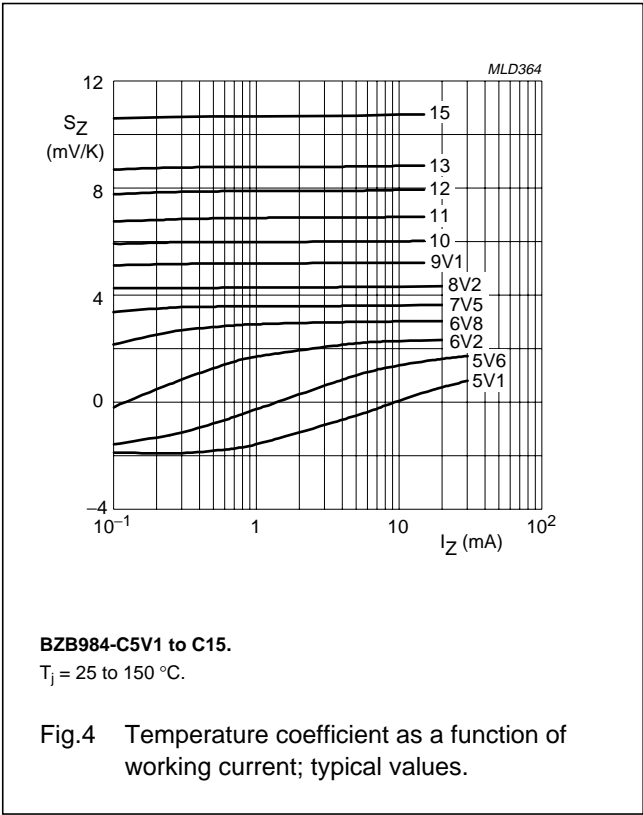
The only recommended soldering method is reflow soldering.

GRAPHICAL DATA



Voltage regulator double diodes

BZB984 series



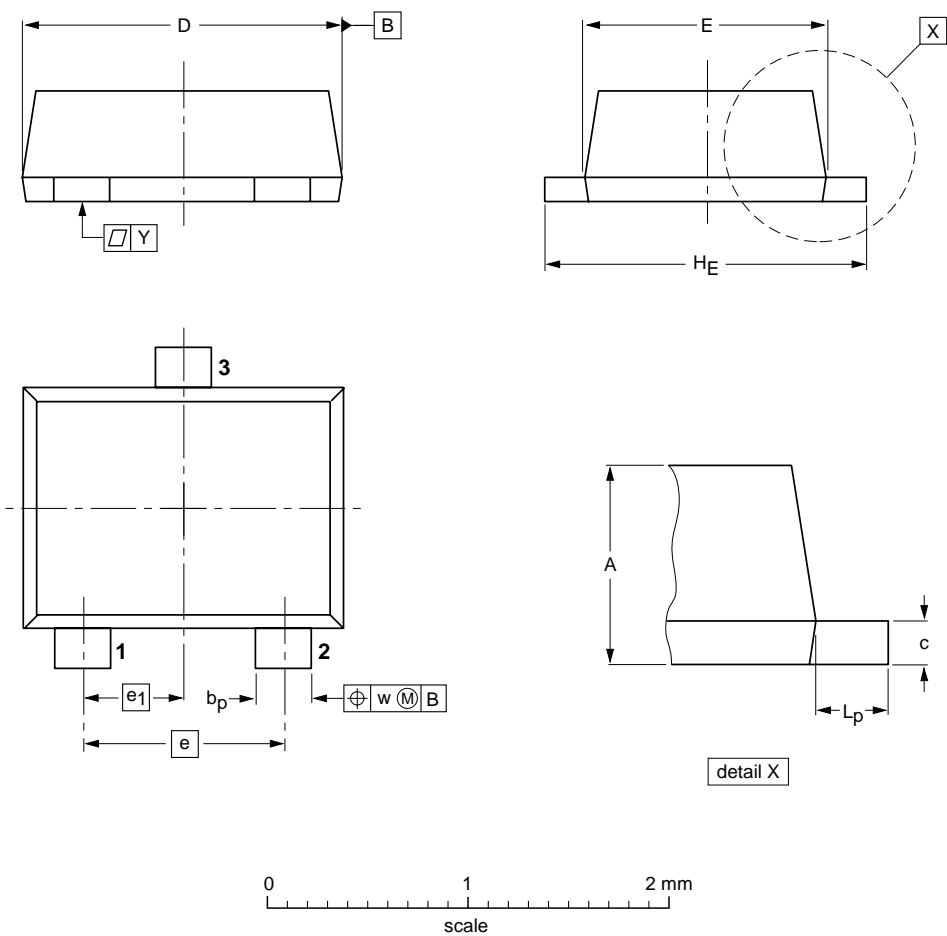
Voltage regulator double diodes

BZB984 series

PACKAGE OUTLINE


Plastic surface mounted package; 3 leads

SOT663



DIMENSIONS (mm are the original dimensions)

UNIT	A	b <sub>p</sub>	c	D	E	e	e <sub>1</sub>	H <sub>E</sub>	L <sub>p</sub>	w	y
mm	0.6 0.5	0.33 0.23	0.18 0.08	1.7 1.5	1.3 1.1	1.0	0.5	1.7 1.5	0.3 0.1	0.1	0.1

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA			
SOT663						01-12-04 02-05-21

## Voltage regulator double diodes

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## DATA SHEET STATUS

DATA SHEET STATUS <sup>(1)</sup>	PRODUCT STATUS <sup>(2)</sup>	DEFINITIONS
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**NOTES**

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